

REMARKS

[0003] Applicant respectfully requests entry of the following remarks and reconsideration of the subject application. Applicant respectfully requests entry of the amendments herein. The remarks and amendments should be entered under 37 CFR. § 1.116 as they place the application in better form for appeal, or for resolution on the merits.

[0004] Applicant respectfully requests reconsideration and allowance of all of the claims of the application. Claims 1 and 3-32 are presently pending. Claims amended herein are 1 and 3-5. Claim 2 is canceled herein, and no claims are withdrawn. New claim 32 is added herein.

Statement of Substance of Interview

[0005] The Examiner graciously talked with me—the undersigned representative for the Applicant—on 13 December 2009. Applicant greatly appreciates the Examiner's willingness to talk. Such willingness is invaluable to both of us in our common goal of an expedited prosecution of this patent application.

[0006] During the interview, I discussed how the claims differed from the cited references Altinel, Schneider and Lakshamanan. Without conceding the propriety of the rejections and in the interest of expediting prosecution, I also proposed several possible clarifying amendments.

[0007] The Examiner was receptive to the proposals, and I understood the Examiner to indicate that the proposed clarifying claim amendments appeared to

distinguish over the cited art of record. For example, the Examiner indicated that clarification regarding “language” and “sub-engine” distinguished the independent claims over the cited art. However, the Examiner indicated that he would need to review the cited art more carefully and do another search, and requested that the proposed amendments be presented in writing.

[0008] Applicant herein amends the claims in the manner discussed during the interview. Accordingly, Applicant submits that the pending claims are allowable over the cited references of record for at least the reasons discussed during the interview.

Formal Request for an Interview

[0009] If the Examiner’s reply to this communication is anything other than allowance of all pending claims, then I formally request an interview with the Examiner. I encourage the Examiner to call me—the undersigned representative for the Applicant—so that we can discuss this matter so as to resolve any outstanding issues quickly and efficiently over the phone.

[0010] Please contact me to schedule a date and time for a telephone interview that is most convenient for both of us. While email works great for me, I welcome your call as well. My contact information may be found on the last page of this response.

Claim Amendments and Additions

[0011] Without conceding the propriety of the rejections herein and in the interest of expediting prosecution, Applicant amends claims 1 and 3-5 herein.

Applicant amends claims to clarify claimed features. Such amendments are made to expedite prosecution and to more quickly identify allowable subject matter. Such amendments are merely intended to clarify the claimed features, and should not be construed as further limiting the claimed invention in response to the cited references.

[0012] Furthermore, Applicant adds new claim 33 herein, which is directed towards clarification of the determining feature of claim 1. This new claim is fully supported by the Application and therefore does not constitute new matter. Further, claim 33 is allowable over the cited references because the combination of references does not teach or suggest "determining comprises generating a hash of the input data in order to determine if an optimized sub-engine is capable of handling the input data." Support for claim 33 can be found on page 10 of the application.

Substantive Matters

CLAIM REJECTIONS UNDER § 103

[0013] The Examiner rejects claims 1-32 under § 103. For the reasons set forth below, the Examiner has not made a *prima facie* case showing that the rejected claims are obvious.

[0014] Accordingly, Applicant respectfully requests that the § 103 rejections be withdrawn and the case be passed along to issuance.

[0015] The Examiner's rejections are based upon the following references in combination:

- **Altinel:** *Altinel, et al.*, "Efficient Filtering of XML Documents for Selective Dissemination of Information" (Proceedings of the 26th VLDB Conference, Cairo, Egypt, 2000, pages 53-64);
- **Lakshmanan:** *Lakshmanan, et al.*, "On Efficient Matching of Streaming XML Documents and Queries" (University of British Columbia, Canada, 2002, pages 1-20); and
- **Schneider:** *Schneider*, US Patent No. 5,668,987 (issued September 16, 1997).

Overview of the Application

[0016] The Application describes a technology for using multiple filter engines to optimize query processing of the filter table. The multiple engines including at least one optimized matcher and one general matcher.

Cited References

[0017] The Examiner cites Altinel as the primary reference in the obviousness-based rejections. The Examiner cites Lakshmanan and Schneider as secondary references in the obviousness-based rejections.

Altinel

[0018] Altinel describes a technology for Index organization and search algorithms for performing efficient filtering of XML documents for large-scale information dissemination systems. (Abstract)

Lakshmanan

[0019] Lakshmanan describes a technology for a requirements index for solving the query labeling problem efficiently. Dual indexes work to provide efficient algorithm for query labeling wherein the algorithms make no more than two passes over input XML document. (Abstract)

Schneider

[0020] Schneider describes a technology for improving execution speed of database queries by optimizing execution of nested queries such as are commonly used in client/server database environments. This is accomplished by

managing a sub query cache that is dynamically adjusted by the system during execution of a query. (Abstract)

Obviousness Rejections

Lack of *Prima Facie* Case of Obviousness (MPEP § 2142)

[0021] Applicant disagrees with the Examiner's obviousness rejections. Arguments presented herein point to various aspects of the record to demonstrate that all of the criteria set forth for making a *prima facie* case have not been met.

Based upon Altinel in view of Lakshmanan in further view of Schneider

[0022] The Examiner rejects claims 1-32 under 35 U.S.C. § 103(a) as being unpatentable over Altinel in view of Lakshmanan and in further view of Schneider. Applicant respectfully traverses the rejection of these claims and asks the Examiner to withdraw the rejection of these claims.

Independent Claims 1, 8, 15, and 23

[0023] Applicant submits that the combination of **Altinel, Lakshmanan and Schneider** does not teach or suggest at least the following feature of these claims (in part and with emphasis added):

An optimized filter sub-engine wherein the optimized filter sub-engine is configured to handle only a subset of the query language, wherein the subset of the query language does not include all aspects of the language

[0024] The Examiner indicates (Action, p. 5) that Altinel teaches an optimized filter sub-engine on page 57 section 4.2 paragraph 1. Applicant disagrees; there is no evidence of an optimized filter sub-engine at this location or any other location of the reference. In his remarks, the Examiner states that "the text [of the above citation] clearly indicates that optimized filter engine is a filter engine and the input is a document". In fact, Altinel teaches the following at the cited location: "when the document arrives at the filter engine, it is run through an XML parser which then drives the process of processing the document". Applicant respectfully submits that Altinel teaches a single filter engine in this passage and does not teach or imply an **optimized filter sub-engine**.

[0025] On page 5 of the action the Examiner states the following in regards to Altinel section 4.1:

"...the examiner believes the process of decomposing an act passed query into a set of path nodes includes handling a subset of the language and does not include all aspects of the language because it is decomposed."

[0026] The applicant submits that the act of decomposing a path into its corresponding parts is not equivalent to a filter sub engine configured to handle a subset of a query language. A decomposed path still comprises all of the corresponding parts that existed prior decomposition. They are now list of parts, the total of the parts comprising the entire original path. A subset by definition is

a portion of a larger collection. Dividing a collection into its corresponding parts as taught by Altinel may assist in identifying the separate parts but until certain of those parts are separated from the general list into a subset, they are not part of a subset. Therefore Altinel does not teach a subset of a language.

[0027] Also on page 5 the examiner accurately states that Altinel does not explicitly teach the following claim features:

"if the determining indicates that the input can be processed by the optimized filter sub-engine, then directing the input to the optimized filter sub-engine for processing; and

"if the determining indicates that the input cannot be processed by the optimized filter sub engine, then directing the input to a general sub-engine for processing, wherein the general filter sub engine is configured to handle all aspects of the language."

[0028] The Examiner cites Lakshmanan (Page 4; Figure1) as teaching a selective sub engine. The examiner states "the text clearly suggests that a selective sub engine occurs in the background that produces multiple matching the given document". Cited text is presented here for reference:

Lakshmanan teaches if the determining indicates that the input can be processed by the optimized filter sub-engine, then directing the input to the optimized filter sub-engine for optimized filter for processing (i.e. *A more clever approach is to devise algorithms that make a constant number of passes over the document and determine the queries answered by each of its elements. This will permit set-oriented processing whereby multiple queries are processed together. Such an algorithm is non-trivial since (i) queries may have repeating tags and (ii) the same query may have multiple matchings into a given document. Both these features are illustrated in Figure 1.* The preceding text clearly suggests that a selective sub-engine occurs in the background that produces multiple matchings in a given document.) (Lakshmanan, page 4; Figure 1); if the determining

[0029] The examiner infers that a sub-engine must be occurring "in the background" in order for the teachings of the reference to be possible. The applicant respectfully disagrees. The reference makes no mention, hint or suggestion of a sub-engine or the need for one. Furthermore, one skilled in the art would not infer that an optimized filter sub -engine is required to accomplish the teachings of Lakshmanan. Therefore Lakshmanan does not teach "if the determining indicates that the input can be processed by the optimized filter sub engine, then directing the input to the optimized filter sub engine for processing".

[0030] Examiner cites Lakshamanan pages 3-4 as teaching the following feature:

"if the determining indicates that the input cannot be processed by the optimized filter sub engine, then directing the input to the general sub engine for processing, wherein the general filter sub engine is configured to handle all aspects of the language."

[0031] On pages 3 and 4 Lakshmanan discusses his matchmaker technology wherein an XML document or data stream is evaluated against a table of queries. Lakshmanan does not teach determining that input cannot be processed by filter sub engine. Consequently it also does not teach directing the input to a general sub engine for processing. In fact the reference teaches a technology similar to those described in the background section of the instant application to describe the problem to be solved by the current application wherein a single query table is used to process incoming data streams without the aid of optimized filter sub engines.

[0032] On page 7 of the current action the examiner states that the motivation for combining Altinel and Lakshamanan is to develop several index organizations and search algorithms for performing efficient filtering of XML documents for large-scale information dissemination systems. This motivation is the stated purpose of Altinel (Abstract). It is unclear to the Applicant how this motivation is related to the instant application. The claims do not recite several index organizations, search algorithms or large-scale information dissemination systems. Therefore, Application submits that one of ordinary skill in the art would have no motivation to combine Altinel and Lakshamanan.

[0033] On page 7 of the current action the examiner accurately states that Altinel and Lakshamanan do not explicitly teach an optimized filter sub-engine. The examiner cites Schneider as teaching an optimized filter sub engine in column 12, lines 40 through 45. This passage is shown below for reference.

Of particular interest to the present invention is the 40 optimization of query execution in the presence of one or more subqueries—queries embedded within other queries. Modification of the Engine 260 for achieving this optimization will now be described in further detail.

Optimizing Queries

A. Queries and Subqueries

Initially, it is helpful to review the nature of SQL queries. In SQL, a construct exists called a "subquery." A subquery may be thought of as a "query within a query" (i.e., a nested query). In some types of subqueries, the subquery references the outer query (i.e., the query in which the subquery is embedded within). This is perhaps best illustrated by way of example.

FIG. 3A illustrates diagrammatically such a situation. Consider two database tables, table T1 (shown at 310) and table T2 (shown at 320). Each table comprises two columns: 30 columns C1 and C2 for table T1, and columns C3 and C4 for table T2. An example of a query having a subquery for the above two tables is shown at 330, as follows:

[0034] In this passage, Schneider teaches methods for processing nested SQL queries. Examiner equates an inner SQL query as used in querying a SQL database with an optimized filter sub-engine. While the terms are similar in spelling the meaning and functionality is categorically different. An inner SQL query is a string crafted in the SQL query language in order to search for data in a data base within another SQL query. This is a concept of "nesting" queries. It does not teach in any way an optimized filter sub-engine. Thus, Schneider does not teach an optimized filter sub-engine, or filter engines at all and thus does not remedy the deficiencies of the other references. Therefore, none of the individual references nor the combination of all of the references together teaches an optimized filter sub engine as claimed.

[0035] As shown above, the combination of **Altinel, Lakshmanan, and Schneider** does not teach or suggest all of the elements and features of claims

1, 8, 15 and 23. Accordingly, Applicant asks the Examiner to withdraw the rejection of these claims.

Dependent Claims

[0036] In addition to its own merits, each dependent claim is allowable for the same reasons that its base claim is allowable. Applicant requests that the Examiner withdraw the rejection of each dependent claim where its base claim is allowable.

Conclusion

[0037] All pending claims are in condition for allowance. Applicant respectfully requests reconsideration and prompt issuance of the application. If any issues remain that prevent issuance of this application, the **Examiner is urged to contact me before issuing a subsequent Action**. Please call or email me at your convenience.

Respectfully Submitted,

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